PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	: Wolfgang HEIMBERG et al.	Confirmation No.: 2520
Application Number	: 10/089,136	
Filed	: December 23, 2002	
Title	: DEVICE FOR THE CARRYING OUT OF CHEMICAL OR BIOLOGICAL REACTIONS	
TC/Art Unit	: 1743	
Examiner:	: Natalia A. Levkovich	
Docket No.	: 0003.0038	
Customer No.	: **39878**	

Mail Stop Reply Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

REPLY BRIEF UNDER 37 C.F.R. § 41.41(a)(1)

Pursuant to the provisions of 37 C.F.R § 41.41, this is a Reply Brief in response to the Examiner's Answer mailed on December 18, 2006 in connection with the final rejection of claims 19-52 set forth in the Final Office Action dated December 29, 2005. A Notice of Appeal was filed on March 28, 2006 and an Appeal Brief was filed on June 12, 2006.

STATUS OF CLAIMS

Claims 19-52 are pending in this application. Claims 1-18 have been canceled. Claims 19-52 are rejected. No claims are currently allowed. The claims on appeal (19-52) are set forth in the attached Appendix.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 19-52 recite patentable subject matter under 35 U.S.C. §103(a) over applied references of U.S. Patent No. 5,601,141 to *Gordon et al.* in view of U.S. Patent No. 6,933,370 to *Yasuda et al.* **or** U.S. Patent No. 5,819,842 to *Potter et al.*

ARGUMENTS

At the outset, it is respectfully submitted that the Appeal Brief was unable to fully address the reference to *Potter et al.* as the Examiner's intended rejection was not completely clear. The exact use of *Potter et al.* was only clarified in the Examiner's Answer. Accordingly, *Potter et al.* will be more fully addressed herein.

In addition, Appellants are pleased to note that the Examiner considers the subject matter of claims 39 and 40 to be allowable if rewritten to incorporate the subject matter of the independent claim(s) from which they depend. However, Appellants believe that the claims on Appeal are allowable absent such amendment as further explained in the following.

Gordon et al. teach away from claimed invention

It is respectfully requested that the Examiner withdraw use of *Gordon et al.* in the rejection under 35 U.S.C. § 103(a) as *Gordon et al.* teach away from using one sample plate as claimed.

Claims 19 and 51 each clearly state that the reaction vessel receiving element is configured to receive one microtiter plate. The reaction vessel receiving element is divided into several segments, wherein each segment receives a portion of the microtiter plate.

With respect to *Gordon et al.*, the Examiner agrees that there is no structural equivalent to a reaction vessel receiving element divided into several segments and configured to receive one microtiter plate. Instead, *Gordon et al.* disclose that each module receives a separate plate. Of even further significance however, is that *Gordon et al.* teach away from using only one plate and pursue a completely modular approach instead. As an example, column 1, lines 29-37 of *Gordon et al.* describe devices for processing multiple samples; however *Gordon et al.* assert that using only one plate is a problem because "any malfunction or diminution of function of any component requires a repair of a complete system that extends over this large area". *See* column 1, lines 44-48 of *Gordon et al.* In order to solve this problem, *Gordon et al.* provide a base and an array of modules mounted on the base as described throughout the specification and beginning at column 2, line 9 describe the module approach in detail throughout.

The Examiner applied *Yasuda et al.* as disclosing a "sample plate having means for individual heating of specific areas of a single substrate 13" at Figures 3-4 and col. 7, lines 5-60. (See Office Action, page 3, lines 6-8). Even if *Yasuda et al.* can be said to

have this teaching, they still do not overcome the missing teaching in *Gordon et al.*, particularly the failure to teach or suggest the segmented reaction vessel receiving element divided into several segments, wherein each segment receives a portion of the microtiter plate.

Accordingly, it is Appellants position that *Yasuda et al.* merely perpetuate the modular configuration of *Gordon et al.* and the combination fails to teach or suggest a segmented reaction vessel receiving element, wherein each segment receives a portion of the one microtiter plate.

Potter et al. is applied as an alternative to *Yasuda et al.* and in combination with *Gordon et al.* Specifically, it is the Examiner's position that *Potter et al.* disclose a device for the individual, controlled heating of several samples and that the samples are within one "plate". Even assuming that this is the teaching of *Potter et al.*, there is no motivation to modify *Gordon et al.* since they specifically teach away from using a single plate in favor of a modular approach, regardless of the heating arrangement. Furthermore, *Potter et al.* teach away from *Gordon et al.* by making clear that its teachings do not apply to "machines having more than one temperature regulating heating block . . . [since] it merely represents the housing of several machines in a single case. . . ." (Col. 2, line 66 to Col. 3, line 3). Finally, *Potter et al.* teach away from *Gordon et al.* by distinguishing over "a metal heating and cooling block in which tubes are inserted." (Col. 2, line 40-41).

Accordingly, *Potter et al.* do not overcome the deficiencies identified in connection with *Gordon et al.* and it is submitted that these references are non-combinable at the outset as described.

In view of the above, Appellants respectfully request that the Honorable Board of Patent Appeals and Interferences Reverse the rejection of claims 19-52 under 35 U.S.C. § 103(a).

Conclusion

Appellants respectfully request Reversal of the outstanding rejection in the present application.

If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 50-2961.

Respectfully submitted,

Dated: February 20, 2007

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Claims Appendix

19. Device for carrying out chemical or biological reactions comprising:

a reaction vessel receiving element, wherein the reaction vessel receiving element is configured to receive one microtiter plate;

two or more heating devices for heating the reaction vessel receiving element; and

a cooling device for cooling the reaction vessel receiving element,

wherein a) the reaction vessel receiving element is divided into several segments, wherein each segment receives a portion of the microtiter plate, b) each segment is assigned one of the heating devices, wherein the heating devices may be actuated independently of one another, and c) the individual segments are thermally decoupled in such a way that different temperature levels may be set and maintained in two adjacent segments.

20. Device according to claim 19, wherein each segment of the reaction vessel receiving element is assigned a cooling device, wherein the cooling devices may be actuated independently of one another.

21. Device according to claim 19, wherein the segments of the reaction vessel receiving element are each comprised of a base plate with one or more tubular, thin-walled reaction vessel holders, which form one piece together with the base plate.

22. Device according to claim 20, wherein the segments of the reaction vessel receiving element are each comprised of a base plate with one or more tubular, thin-walled reaction vessel holders, which form one piece together with the base plate.

23. Device according to claim 19, wherein the individual segments are thermally decoupled by means of an air gap formed between adjacent segments.

24. Device according to claim 22, wherein the individual segments are thermally decoupled by means of an air gap formed between adjacent segments.

25. Device according to claim 19, wherein the individual segments are thermally decoupled by means of a gap, formed between adjacent segments, in which a thermal insulator is inserted.

26. Device according to claim 24, wherein the individual segments are thermally decoupled by means of a gap, formed between adjacent segments, in which a thermal insulator is inserted.

27. Device according to claim 19, wherein each of the heating devices has a Peltier element, wherein in each case one segment of the reaction vessel receiving element is assigned a Peltier element, and the Peltier elements are thermally coupled to the respective segments.

28. Device according to claim 26, wherein each of the heating devices has a Peltier element, wherein in each case one segment of the reaction vessel receiving element is assigned a Peltier element, and the Peltier elements are thermally coupled to the respective segments.

29. Device according to claim 19, wherein the cooling devices comprise a Peltier element and/or a heat exchanger, wherein in each case one segment of the reaction vessel receiving element is assigned a Peltier element and/or a heat exchanger.

30. Device according to claim 28, wherein the cooling devices comprise a Peltier element and/or a heat exchanger, wherein in each case one segment of the reaction vessel receiving element is assigned a Peltier element and/or heat exchanger.

31. Device according to claim 29, wherein the heat exchanger is provided with cooling ducts through which a fluid may flow, wherein the fluidic flow of individual heat exchangers may be controlled independently of one another.

32. Device according to claim 30, wherein the heat exchanger is provided with cooling ducts through which a fluid may flow, wherein the fluidic flow of individual heat exchangers may be controlled independently of one another.

33. Device according to claim 31, wherein that the fluid is a cooling fluid, in particular water.

34. Device according to claim 32, wherein that the fluid is a cooling fluid, in particular water.

35. Device according to claim 19, wherein the reaction vessel receiving element is divided into at least four segments.

36. Device according to claim 34, wherein the reaction vessel receiving element is divided into at least four segments.

37. Device according to claim 19, wherein the individual segments each have the same number of recesses.

38. Device according to claim 36, wherein the individual segments each have the same number of recesses.

39. Device according to claim 19, wherein on their side edges the segments have downwards-facing hook elements by which they rest on ties.

40. Device according to claim 38, wherein on their side edges the segments have downwards-facing hook elements by which they rest on ties.

41. Device according to claim 19, wherein each segment is assigned a temperature sensor with which the temperature of the segment concerned is sensed, with the temperature of the segment being controlled on the basis of the temperatures sensed by the individual sensors.

42. Device according to claim 40, wherein each segment is assigned a temperature sensor with which the temperature of the segment concerned is sensed, with the temperature of the segment being controlled on the basis of the temperatures sensed by the individual sensors.

43. Device according to claim 19, wherein each segment is assigned one or more temperature equalisation elements.

44. Device according to claim 42, wherein each segment is assigned one or more temperature equalisation elements.

45. Device according to claim 19, wherein it has a control unit to actuate the heating device and the cooling device, wherein the control unit is so designed that the cooling devices of the individual segments may be actuated individually.

46. Device according to claim 44, wherein it has a control unit to actuate the heating device and the cooling device, wherein the control unit is so designed that the cooling devices of the individual segments may be actuated individually.

47. Device according to claim 45, wherein in one operating mode the control unit actuates only a part of the segments, wherein the segments have side edges, and the segments adjoining the side edges of an actuated segment are not actuated.

48. Device according to claim 46, wherein in one operating mode the control unit actuates only a part of the segments, wherein the segments have side edges, and the segments adjoining the side edges of an actuated segment are not actuated.

49. Device according to claim 45, wherein in one operating mode the segments are so actuated that the temperature difference between adjacent segments is less than a predetermined temperature difference (ΔT).

50. Device according to claim 48, wherein in one operating mode the segments are so actuated that the temperature difference between adjacent segments is less than a predetermined temperature difference (ΔT).

51. Device for carrying out chemical or biological reactions comprising:

a reaction vessel receiving element, wherein the reaction vessel receiving element is configured to receive one microtiter plate;

a heating device for heating the reaction vessel receiving element; and

two or more cooling devices for cooling the reaction vessel receiving element,

wherein a) the reaction vessel receiving element is divided into several segments, wherein each segment receives a portion of the microtiter plate, b) each segment is assigned one of the cooling devices, wherein the cooling devices may be actuated independently of one another, and c) the individual segments are thermally decoupled in such a way that different temperature levels may be set and maintained in two adjacent segments.

52. Device according to claim 51, wherein each segment of the reaction vessel receiving element is assigned a heating device, wherein the heating devices may be actuated independently of one another.